

REMARKS

Claims 1, 5-14, 17-39, 44-52 are pending in the application. Claims 2-4, 15-16 and 40-43 are cancelled. Claims 1, 5-7, 10-11, 24 and 27-28 are amended, and new Claims 44-52 are added. The amendments and new claims find support in the specification and drawings as originally filed. In particular, the replicon of SEQ ID NO:1 is shown in Fig. 1, and the shuttle vector of SEQ ID NO:3 is shown in Fig. 3. The isolation of the shuttle vector of SEQ ID NO:3 is shown in Examples 3-7. Sequence identity is discussed in paragraphs 0007, 0011, 0017, 0018, and 0019. Isolation of the shuttle vector is discussed in paragraph 0046. Autonomous replication of nucleic acid sequences in *Ketogulonigenium*, *E. coli* and other organisms is discussed in paragraphs 0037, 0038, 0051, 0056 and 0059. The amendments and new claims therefore do not represent new matter.

Rejection Under 35 U.S.C. § 112, First Paragraph

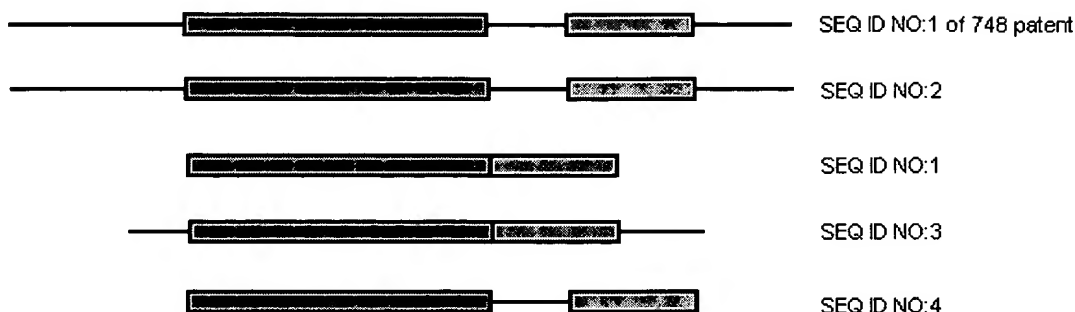
The Advisory Action mailed from the office on October 15, 2004 stated that the rejection of the claims under 35 U.S.C. § 112, paragraph 1 is overcome.

Double Patenting Rejection

With regard to the double patenting rejection, applicant believes that this rejection is also overcome by amendments and new claims.

The Subject Matter

The claims were rejected on obviousness-type double patenting grounds in view of issued U.S. Patent 6,503,748 ("the '748 patent"). Applicant had previously argued that only SEQ ID NO:2 in the current application is identical to SEQ ID NO:1. The statement was not precisely correct, however, and the relationships of the various sequences in the current application and the '748 patent are set forth below:



Alignments of the various sequences are provided herewith as Exhibits A - E, which are:

Exhibit	Sequence 1	Sequence 2
A	SEQ ID NO:1 of '748 patent	SEQ ID NO:2 of present application
B	SEQ ID NO:1 of '748 patent	SEQ ID NO:1 of present application
C	SEQ ID NO:1 of '748 patent	SEQ ID NO:3 of present application
D	SEQ ID NO:1 of '748 patent	SEQ ID NO:4 of present application
E	SEQ ID NO:1 of present application	SEQ ID NO:3 of present application

The two portions of the *Ketogulonigenium* replicon are indicated as shaded boxes. As can be seen from this diagram, SEQ ID NO:2 of the present application is largely identical to SEQ ID NO:1 of the '748 patent. SEQ ID NO:4 also contains the replicon and the intervening 404 nucleotides as they occur in SEQ ID NO:1 of the '748 patent and SEQ ID NO:2 of the present application. In SEQ ID NOS:1 and 3, however, the two portions of the replicon are arranged contiguously, without the intervening 404 nucleotides.

The nucleotide sequence of the replicon as it is presented in SEQ ID NOS:1 and 3 therefore does not exist in SEQ ID NO:1 of the '748 patent, and is therefore novel and non-obvious over the claims of the '748 patent.

The Claim Amendments

Claim 1 has been amended to recite a *Ketogulonigenium* plasmid replicon "as shown in SEQ ID NO:1." As shown in the diagram above, SEQ ID NO:1 contains the *Ketogulonigenium*

replicon without the intervening 404 nucleotides that occur in the '748 patent. The two portions of the replicon are arranged contiguously, unlike their arrangement in the '748 patent. This sequence is therefore new and not obvious in view of the *Ketogulonigenium* replicon as shown in the '748 patent. Claim 1 and dependent claims 5-14, 17-26, 31-39 and 44-47 are therefore new and not obvious in view of the '748 patent, and Applicant respectfully requests that the rejection on double patenting grounds be reconsidered and withdrawn.

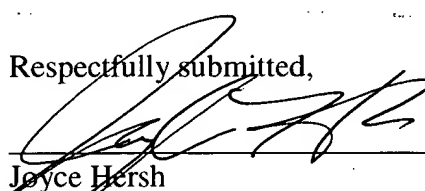
Claims 27 and 28 have been similarly amended to recite the *Ketogulonigenium* replicon as shown in SEQ ID NO:1. These claims, and claims 29-30 are also new in view of the '748 patent.

New claim 48 recites a *Ketogulonigenium* replicon comprising the first portion of the replicon as shown in SEQ ID NO:2, immediately followed by the second portion of the replicon. Applicant respectfully submits that this claim is novel over the '748 patent.

Like the replicon as shown in SEQ ID NO:1, the shuttle vector of SEQ ID NO:3 contains the two portions of the replicon arranged contiguously. Claims 49 and 52, and dependent claims 50-51 are therefore novel and not obvious in view of the '748 patent.

Applicant submits that all claims are allowable as written and respectfully requests early favorable action by the Examiner. If the Examiner believes that a telephone conversation with Applicant's attorney/agent would expedite prosecution of this application, the Examiner is cordially invited to call the undersigned attorney/agent of record. Please apply any charges or credits to Deposit Account No. 50-1721.

Respectfully submitted,



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